

1. **DESCRIPTION:** Teams will gather and process data to solve problems.

A TEAM OF UP TO: 2

EYE PROTECTION: #4

APPROXIMATE TIME: 50 minutes

2. **EVENT PARAMETERS:** Each **student** may bring **and use any kind of** calculator. Where a station requires a more advanced calculator, probes or other lab equipment, the event supervisor will provide them. The event supervisor will provide a list of mathematical relationship, formulas or constants. **Each team may bring only one 8.5" X 11" two-sided page of information in any form from any source.** Students must bring and use chemical/splash protection goggles where required.
3. **THE COMPETITION:** The event will consist of two lab stations and up to 10 questions limited to the two topic areas below.

Level	Probes	2012-2013 Topics
Regional	microphone	Harmonics-Open & closed tubes and strings
	gas pressure (or non-technical gas measurement)	Enzymatic reactions (yeast catalase), decomposition rates
	temperature	
State	microphone	Same as Regional
	gas pressure	Regional + reaction types
	temperature	
National	microphone	Same as Regional
	gas pressure	Regional + State + animal catalase, ideal gas law
	temperature	

- **Note:** At the national level, Vernier probes and TI handhelds will be used at the two stations.

- a. Students will apply scientific theories and principles related to the current topics in the solution of the problems. Students will be asked to collect data, make measurements and determine specific values to solve a problem using probeware that has been provided, set up, and demonstrated by the supervisor. Intermediate measurements and calculations may be required.
 - b. At state and national tournaments, supervisors will use calculators and **probes for the topics above.** Regionals are encouraged to use probes but may provide students with data sets collected by such sensors/probes following a data collection demonstration.
4. **SCORING:** Teams will be ranked based on the highest total points as determined by the sum of the scores of each individual station. Each station score will be a sum of the accuracy of the required task answer (80%) and content test questions (20%). In case of ties, a tiebreaker will be announced prior to the competition.

Recommended Resources: All reference and training resources including the **Problem Solving and Technology CD** are available on the Official Science Olympiad Store or Website at www.soinc.org

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